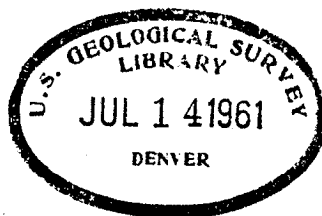




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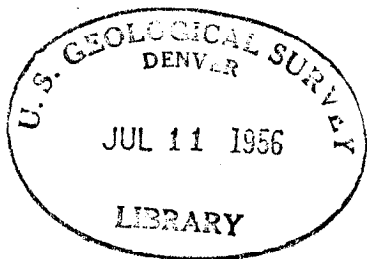


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Article IV.—ON SOME FOSSIL RHYNCHOPHOUS COLEOPTERA
FROM FLORISSANT, COLORADO.

BY H. F. WICKHAM.

PLATES I-IV.

The beetles treated in the following report form part of a collection made by parties under the direction of Prof. T. D. A. Cockerell. They have been transmitted to me for study by the American Museum of Natural History and the specimens are divided between that institution and the University of Colorado.

This paper is one of a series intended to elucidate the fossil Coleopterous fauna of Florissant, with the ultimate aim of working out all of the accessible collections and thereby putting our knowledge of the beetle life of that place and time in such shape as to make it available for comparison with modern or other ancient faunæ. While Dr. Scudder has described 116 species of Rhynchophora from these shales, the field was not exhausted even in that group, since my studies of smaller series, mostly collected by Prof. Cockerell's parties, have increased the number of known forms by about twenty per cent. In the non-Rhynchophorous families the proportion of novelties will be enormously greater, as Dr. Scudder had only begun their study.

A few words should be said regarding the descriptions and the plates. In citing specimens I have spoken of them as paired when both sides, obverse and reverse, were shown. In such cases, the insect was, of course, represented upon two stones. When only one stone, which shows but one view of the insect, was present, I have spoken of the specimen as single. As to the figures, they are all from my camera lucida drawings and are intended to show the outlines and proportions. Where the sculpture is shown, this also is put in with the camera lucida, but it will be seen that in many instances the figures are drawn to illustrate the courses of sculptured markings and not to give views of the minuter modifications. Detail views are furnished for many of the microscopical characters, and attention has been called, in the proper places, where striæ or similar structures have been diagramed. Advantage has been taken of this opportunity to figure some Rhynchophora described in Vol. XXX of this Bulletin, pages 63 to 69.

Arranged by families, the species herein reported upon are as follows:

RHYNCHITIDÆ.

- Masteutes saxifer* Scudd.
Eugnamptidea tertiaria n. sp.
Isothea alleni Scudd.
Docirhynchus terebrans Scudd.
 " *culex* Scudd.
Toxorhynchus minusculus Scudd.
 " *grandis* Wickh.

OTIORHYNCHIDÆ.

- Ophryastites miocenus* n. sp.
 " *cinereus* Scudd.
Ophryastes championi n. sp.
Otiorhynchites florissantensis Wickh.
Cyphus subterraneus Wickh.

CURCULIONIDÆ.

- Geralophus antiquarius* Scudd.
 " *occultus* Scudd.
 " *scudderi* Wickh.
 " *saxuosus* Scudd.
 " *fossicius* Scudd.
 " *repositus* Scudd.
 " *lassatus* Scudd.
 " *pumiceus* Scudd.
 " *retritrus* Scudd.
Coniatus differens n. sp.
Apion confectum Scudd.

- Apion exanimale* Scudd.
 " *refrenatum* Scudd.
Cleonus estriatus n. sp.
 " *rohweri* Wickh.
 " *primoris* Scudd.
 " *foersteri* Scudd.
 " *degeneratus* Scudd.
Dorytomus vulcanicus n. sp.
Magdalis striaticeps Wickh.
Anthonomus rohweri n. sp.
Sibynes whitneyi Scudd.
Conotrachelus florissantensis n. sp.
Cryptorhynchus coloradensis n. sp.
 " *fallii* n. sp.
 " *kerri* Scudd.
Baris hoveyi n. sp.
 " *schucherti* n. sp.
 " *matura* Scudd.
Balaninus extinctus n. sp.
 " *restrictus* Scudd.
 " *minusculoides* Wickh.
 " *minusculus* Scudd.

CALANDRIDÆ.

- Scyphophorus fossionis* Scudd.

ANTHRIBIDÆ.

- Cratoparis adumbratus* Wickh.

***Masteutes* Scudd.**

***M. saxifer* Scudd.** This species is represented by a fine specimen showing obverse and reverse, collected at Station number 14, by W. P. Cockerell.

***Eugnamptidea* n. gen.**

Form similar to *Eugnamptus*, but differs in the antennæ having a four-joint club. Other characters are wanting, but the above will amply distinguish it.

***E. tertiaria* n. sp.** (Plate IV, Figs. 9 and 10.) Form moderately elongate apparently about as in the recent *Eugnamptus angustatus*. Head rather long, but not quite equal to the prothorax, rather coarsely punctate immediately behind the eye, occipital and genal regions strongly but finely transversely striate. Beak about as long as the prothorax, slightly roughened and with a fine lateral stria or carina slightly arcuate, the extreme tip broken off. Eye large. Antenna long, slender, eleven-jointed, joints 1 to 6 subequal, seventh distinctly shorter, the remaining four forming a loose slender club as shown in the figure, the tip of the last joint obscured. Prothorax short, discal region rather strongly moderately coarsely and fairly closely

beset with circular punctures which become confluent and somewhat smaller on the sides. Elytra visible only at the edge where two rows of strong large circular punctures are seen, those of each row closely approximate but the rows themselves distant about the diameter of the punctures. Abdomen showing four subequal segments separated by nearly straight sutures, the extreme tip broken off. Sculpture of the underside obscure, apparently only a slight roughening or scabrosity. Length, from front of eye to broken tip of abdomen, 2.50 mm.

Station number 14. Collected by S. A. Rohwer. The type is in the American Museum of Natural History.

The antenna of this insect is most remarkable and will at once separate it from any weevil with which I am acquainted. It belongs to the Rhynchitidæ, however, by all the other characters of structure and facies that can be made out. None of the species described by Dr. Scudder approach it very closely though the form is similar to some of them, notably *Isothea*. The antennæ of *I. alleni* as figured on the whole specimen have a four or five jointed club, but Dr. Scudder gives a very circumstantial account in which the club is said to be composed of joints 9 to 11, and in his detail figure it is so drawn.

Isothea Scudd.

I. alleni Scudd. Represented by one single and one paired specimen collected at Station number 14 by Geo. N. Rohwer, and by a very poor example from Station number 9 collected by S. A. Rohwer.

Docirhynchus Scudd.

D. terebrans Scudd. A good specimen comes from Station number 14, where it was collected by S. A. Rohwer. The head and beak together are not as long as the elytra in this example, which agrees with Scudder's figure in this respect, although in his description the conjoint length of the first two parts is said to be equal to the third. Two other specimens are referred here, one of them having been taken at Station number 14 by Prof. Cockerell, the other at Station number 17B by Mrs. Cockerell.

D. culex Scudd. Represented by two paired and two single specimens, all from Station number 14, where they were collected by S. A. Rohwer and Mrs. Cockerell. I have allowed for some slight variation in the length of the beak in this species, which seems to differ from *D. terebrans*, aside from the rostral structure, chiefly in having a smooth prothorax and in being a trifle larger.

Toxorhynchus Scudd.

T. minusculus Scudd. Ten single specimens and four pairs come from Station number 17, and two pairs from Station number 17B. The examples

agree with Scudder's description and figure in form, size and the characteristic coarse thoracic sculpture. They show the beak to have been nearly straight and about as long as the prothorax.

T. grandis Wickh. (Plate III, Fig. 5.) This species was not figured at the time of the publication of the original description, and advantage is taken of the present opportunity to offer a camera lucida drawing which will show the form and the elytral sculpture.

Ophryastites Scudd.

O. miocenus n. sp. (Plate II, Fig. 1.) Represented by an elytron only, of a moderately short and broad type, the disk arched and marked with nine rather deep striae at the bottoms of which are series of strong rounded punctures, becoming smaller at apex and sides. The interspaces between the striae are somewhat convex but not sharp, excepting the outer two which are subcarinate. There is no sign of scaly vestiture. The width between the rows varies somewhat, but in general the interspaces are about as broad as the punctures or a little less. In the rows themselves, the punctures are ordinarily separated by less than their own diameters. Length, 5.40 mm. Width, 2.80 mm.

Station number 14. Collected by S. A. Rohwer. The type and only known specimen, in obverse and reverse, is in the Museum of the University of Colorado.

Among the fossil forms known from Florissant, this compares only with *O. absconsus* Scudd., a larger form of narrower build and with heavily scaled elytra.

O. cinereus Scudd. One specimen from Station number 14, collected by S. A. Rohwer.

Ophryastes Schönh.

O. championi n. sp. (Plate I, Fig. 3.) Specimen preserved partly in profile, the head slightly twisted so as to show part of the top. Beak thick, very slightly arcuate, and, measured from its apex to the front of the eye, a little shorter than the prothorax, two strong straight sulci on the rostral disk extending from a point about opposite the anterior end of the antennal scrobe to the base; from the position of the beak it is quite possible that a third sulcus was present, as in *O. latirostris*. Scrobe deep, oblique, directed against or in front of the lower margin of the eye. Head finely sculptured with small punctures. Eye broken on the lower edge, but probably pointed beneath. Antennae wanting. Prothorax, as preserved, about one third higher than long, dorsum arched, more strongly posteriorly, ocular lobe pronounced but not excessively strong, discal and lateral sculpture (shown only in part in the figure) strong and irregular, more or less rugose. Elytra somewhat broken, outline only moderately arched, sculpture composed of rather regular rows of rounded deep punctures, those of the disk stronger and larger than the lateral ones. None of the rows are in complete preservation, so it is not possible to determine the exact characters of their apices. Apparently from overlapping of the elytra, the extreme discal striae are obliterated or mixed so that the figure is made to show only those rows which

are traced with certainty. Abdomen somewhat distorted, but the third and fourth ventral segments, as seen from the side, are much shorter than the first and second, while the fifth is longer than the two preceding united. The abdominal sculpture is a fine subrugose punctuation. Legs wanting, except one of the first pair, which shows the coxa to have been small and globular, the tibia rather long and slender. The femur is foreshortened, being set in the stone at an angle. Length, from apex, of elytra to front margin of prothorax, 9.50 mm.

Station number 14. Collected by Mrs. W. P. Cockerell. The type is in the Museum of the University of Colorado.

The only specimen is a reverse, the sulci above described being represented by ridges and the punctures by tubercles. It is difficult to get an accurate idea of the size and spacing of the punctures under these conditions, but they appear as represented in the figure. The punctures were probably not set in impressed striæ. The interspaces were finely closely granulate or else clothed with thick rounded scales, since impressions indicate one or the other of these structures. The insect seems to have had an appearance similar to the recent *O. tuberosus*. Judging from the descriptions and figures, this cannot be either of the two species of *Ophryastes* described by Scudder and it bears no special resemblance to any of his other Florissant Rhynchophora.

I take pleasure in naming this fine species for Mr. G. C. Champion of London, England.

Otiiorhynchites *Fritsch* (emend. *Scudd.*).

O. florissantensis *Wickh.* (Plate I, Fig. 1.) A figure of this species is given, which will show the form of the elytron and the arrangement of the punctures over a portion of the surface. The part drawn is somewhat more irregularly sculptured than most of the remainder.

Cyphus *Germ.*

C. subterraneus *Wickh.* (Plate II, Fig. 4.) The figure is intended to illustrate the outline and the courses of the elytral striæ as far as they are traceable. It is drawn from the type.

Geralophus *Scudd.*

G. antiquarius *Scudd.* Occurs at Stations number 13, 13B and 14. All of the nine specimens before me were collected by S. A. Rohwer and Mrs. W. P. Cockerell.

G. occultus *Scudd.* Two pairs taken by S. A. Rohwer and two single specimens collected by Mrs. Cockerell, all from Station number 14.

G. scudderi Wickh. (Plate IV, Fig. 8.) This is mentioned merely to call attention to the figure.

G. saxuosus Scudd. One paired specimen from Station number 14, Mrs. Cockerell.

G. fossicius Scudd. Station number 14, one pair, collected by Mrs. Cockerell: Station number 17, a single specimen taken by S. A. Rohwer: Station 21, a single specimen from Mrs. Cockerell: and another example without special locality.

G. repositus Scudd. Two single specimens from Station number 14, collected by Prof. Cockerell, and another example, referred here with some doubt, from Station number 13, collected by S. A. Rohwer.

G. lassatus Scudd. This is the most abundant species. Specimens were taken by all of the members of the expedition and are marked with the Station numbers 13, 14, and 17.

G. pumiceus Scudd. A single specimen from Station number 14, S. A. Rohwer, is placed here with some doubt.

G. retritrus Scudd. One specimen, Station number 17, collector not specified.

Coniatus Germ.

C. differens n. sp. (Plate III, Figs. 3 and 4). Form moderately stout. Head small, strongly and closely but finely punctate on the vertex, eye circular, beak about as long as the prothorax, regularly arcuate, surface finely roughened, scrobe shallow and somewhat obscured. Prothorax short, a little tapering, but the lower edge is crushed so that the original form is not entirely retained, disk and sides to near the margin beset with deep closely placed circular punctures of small size but much coarser than those of the head. Elytra broken at tip but moderately arched, surface minutely roughened and marked with moderately deep regular striæ, the striæ with series of strong longitudinal punctures, interspaces a little convex, without visible hairs. Body beneath punctured similarly to the pronotum but less closely and deeply, especially upon the abdominal segments. Legs fairly stout. Length, from front of head to tip of abdomen, 4.00 mm.

Station number 14. Collected by Mrs. W. P. Cockerell. The type and only known specimen is in the Museum of the University of Colorado.

Resembles *C. evisceratus* Scudd., in form, but is larger, the head is strongly punctate but not striate and the beak is a little shorter.

Apion Hbst.

A. confectum Scudd. Station number 13, S. A. Rohwer: Station number 17, S. A. Rohwer and Mrs. W. P. Cockerell. In all, the species is represented by four examples, one of which is paired.

A. exanimale Scudd. A poor paired specimen from Station number 14, collected by Mrs. Cockerell. I am not sure of the specific reference.

A. refrenatum Scudd. Two pairs and one single specimen from Station number 13: a single specimen from Station number 14. All are collected by S. A. Rohwer.

Cleonus Schönh.

C. estriatus n. sp. (Plate II, Fig. 3.) Form moderately stout for this genus, subparallel. Head finely but closely punctate, the punctures circular and extending well out on to the rostrum, becoming finer towards the apex and finally evanescent close to the tip where they seem to be replaced by a mere roughening. Beak, viewed from above, broad, tapering rather gradually into the head, sides subparallel from shortly in front of the base to the truncate apex, median line probably carinate, fairly distinct, flanked on each side by a finer line. Eyes not defined. Prothorax about two fifths broader than long, base wider than apex, no evident apical constriction, gradually narrowing from the base but more rapidly and arcuately so near the tip. The sculpture consists of fine circular closely crowded punctures, evenly distributed and only barely perceptibly larger than those of the head. Scutellum broad, triangular, much wider than long, punctured about like the prothorax but a little more finely. Elytra subparallel at sides but tapering somewhat near the apex, sculpture of fine but well marked widely separated and somewhat irregularly distributed punctures, each of which carries a short slender hair. There is no sign of striae. Legs wanting. Abdominal segments, in part, showing through the elytra, two of these, probably the third and fourth, being short and subequal, sutures slightly arcuate. Length, to tip of rostrum, 8.75 mm.; of beak, about 1.20 mm.; of elytra, 4.90 mm. Width of both elytra, 3.00 mm.

Station 14. Collected by Mrs. W. P. Cockerell. The type and only known specimen is in the American Museum of Natural History.

The above described species cannot be referred to any of Dr. Scudder's Cleonini, since it differs radically from all of them in sculpture. In this particular, it comes nearest to *Eocleonus subjectus*, but in that beetle the punctures of the head and prothorax are confluent and form a more or less vermiculate structure. The lack of elytral striae in *C. estriatus* is the most striking character in comparison with all of the known Florissant fossils of the group. Regarding the generic assignment, it is possible that *C. estriatus* will eventually require a new genus for its reception. It differs from all the American Cleonini known to me in the non-striate elytra, lack of basal prothoracic lobe and in having a large distinct scutellum. Although I have examined a considerable number of exotic species of the tribe, as well as natives, I find nothing that agrees with it in all of the above characters, though the Algerian *C. ophthalmicus* has a similarly non-lobate thoracic base. The meso-scutellum in *Cleonus* is really of good size, as may be seen by dissection, but it is mostly hidden by the overlap of the prothorax. The punctuation of the scutellum on my specimen indicates, I think, that it was exposed in life and strongly visible.

C. rohweri Wickh. (Plate I, Fig. 4.) The figure will show the form,

the courses of the elytral striæ and the proportions of the different parts of the body. The punctuation is not indicated on the drawing, and reference must be had to the original description.

C. primoris Scudd. One specimen from Station number 14, collected by Mrs. Cockerell.

C. foersteri Scudd. Six specimens, all from Station number 14, collected by S. A. and Geo. N. Rohwer.

C. degeneratus Scudd. One paired specimen from Station 14, collected by Prof. Cockerell.

Dorytomus Steph.

D. vulcanicus n. sp. (Plate IV, Fig. 1.) Form elongate and as seen in profile about parallel. Head much higher than long, finely and extremely closely but not confluent punctured on the upper half, the punctures circular and rather deep. The lower half is marked with about eleven fine transverse striæ which very nearly follow the curve of the thoracic margin. Eye elliptical, transverse, close to the base of the beak which is slightly arcuate, of nearly uniform thickness throughout, distinctly but rather finely striate and minutely granulate, the scrobe lateral, directed below the middle of the eye. Prothorax about one and one-half times as high as long, no post-ocular lobes, surface punctured about like the head. Elytra about three times as long as the prothorax, sculpture indistinct but consisting of rows of well separated moderately fine punctures, the punctures circular or occasionally elliptical in form. Metasternum punctured similarly to the prothorax, abdominal sculpture perceptibly finer. Legs moderate, front thigh strongly toothed. Length, exclusive of rostrum, 4.75 mm.; of beak, about 1.75 mm.

Station number 17. Collected by Mrs. W. P. Cockerell. The type and only known specimen is in the Museum of the University of Colorado.

In general, this insect compares quite closely with the recent *D. laticollis* from New Hampshire. It does not agree with the figures nor descriptions of either of the two fossil species described from the Florissant shales by Dr. Scudder. Compared with *D. williamsi* Scudd., the present form has relatively a much shorter beak and longer elytra, while it differs from *D. coercitus* Scudd., in having the beak stouter, shorter and distinctly striate, as well as in the dentation of the front femur.

Magdalis Germ.

M. striaticeps Wickh. (Plate II, Fig. 2.) The drawing will show the few characters of the species that can be made out. Unfortunately the specimen is in poor preservation.

Anthonomus Germ.

A. rohweri n. sp. (Plate IV, Figs. 11 and 12.) Form, in profile, subparallel, elytra scarcely arched except behind the middle. Head moderate, strongly punctured.

tured in an arcuate area just back of the eye and distinctly transversely striate on the cheek. Beak curved, the bend rather sudden and a little antemedian, surface punctate and striate. Eye elliptical. Prothorax a little shorter than the beak, dorsum very little arched, surface strongly coarsely (for such a small insect) and subconfluently punctate on the disk, the punctures generally circular in form; at the sides below, they disappear and are replaced by a slight roughening only. The spaces between the punctures are finely alutaceous. Elytron marked with strong rows of punctures in striæ, the striæ themselves fairly deep, the interspaces convex, transversely rugulose and finely irregularly punctulate. The stria punctures are elongate and distinctly narrower than the interspaces, but longitudinally they approach one another very closely. Under surface of meso and metathorax and the abdominal segments with the punctures a little smaller, less strongly impressed and more distantly placed than on the prothoracic disk, the intervening spaces finely transversely rugulose. Hind femur with a rather strong tooth near the apex, the tibia rather slender and bent at the base. Length, exclusive of rostrum, 2.25 mm.

Station number 13. Collected by S. A. Rohwer. The type is in the Museum of the University of Colorado.

This insect is represented by a single specimen, and compares with *A. defossus* Scudd., but has a less strongly arched back, there is no sign of hairs on the prothorax, in spite of the fine preservation, and the elytral striæ are strongly punctured, while Scudder simply describes them as dull rugulose in his species. My figures will show the courses of the striæ as far as they can be made out, and the arrangement of both stria and interstitial punctures.

Sibynes Germ.

S. whitneyi Scudd. Two specimens, neither of them very well preserved, are referred here. Both are from Station number 14, one collected by Mrs. Cockerell, the source of the other not specified.

Conotrachelus Schönk.

C. florissantensis n. sp. (Plate III, Fig. 1.) Form stout, moderately arched. Head finely granulate or punctate on the frontal region, vertex becoming transversely rugose. Eye apparently rounded, partly concealed by the post-ocular lobe. Beak rather long, equal, regularly and slightly arcuate, surface roughened and strongly laterally striate or carinate. Prothorax about two thirds as long as high, with well marked but not excessively prominent post-ocular lobe, surface moderately coarsely and deeply punctate, the punctures usually about circular and close set, becoming confluent in rows upon the disk and upper parts of the sides, so as to form wavy rugæ. Elytra largely obscured by the impression of the other body parts, but the stone shows them to have been rather deeply striate, the striæ marked with regular deep punctures separated by about their own long diameters, the punctures being somewhat elongate or elliptical in outline. Sternal pieces of meso and metathorax strongly and moderately coarsely cribrately punctured, abdomen much more finely

punctate. The first and second abdominal segments are about equal, the third and fourth much shorter, together equal to either of the foregoing, the fifth about as long as the first. Legs stout, finely roughened, tibiae curved, the front ones, at least, longitudinally striate. Front femora strongly unidentate, hind ones apparently mutic. Length, exclusive of rostrum, 6.20 mm.; of beak, about 2.20 mm.

Station number 14. Collected by Mrs. W. P. Cockerell. The type and only specimen is in the Museum of the University of Colorado.

By all the visible characters, should undoubtedly go into the genus *Conotrachelus*. In outline, it resembles the recent *C. nenuphar* very strongly, but the sculpture of the beak, head and thorax is more like that of *C. cribricollis*, though less coarse. The proportions of the abdominal segments, the connation of the first and second across the median area and the bent ends of the last three sutures are strikingly similar to the abdominal structures of our modern *Conotracheli*. The only one of Scudder's weevils which seems to approach closely in any way is his *Rhysosternum æternabile*. That insect is much more slender, has a relatively longer beak, different elytral sculpture and, according to Scudder's figure, the abdominal segments are not of the same proportions. In my figures, the lines representing the elytral striæ are to be taken as indicating the courses but not the width. The punctuation is shown only in part, since it is obscured over much of the elytral area.

Cryptorhynchus Illiger.

C. coloradensis n. sp. (Plate III, Figs. 6, 7 and 8.) Form elongate, especially as to the elytra. Head almost entirely concealed by the prothorax, finely closely punctate near the eye which is quite small and subelliptical. Beak nearly straight, rather broad in profile, the base damaged, but, so far as can be seen, tapering to the tip from a point at about apical two thirds, moderately strongly striate and finely roughened. Antenna showing five funicular joints, subequal in length, approximately as broad as long except the last one, which is a little wider, club elliptical, pointed, three jointed, as long as the four preceding joints of the funicle. Prothorax short, form apparently badly distorted, but seemingly with strong post-ocular lobes. Surface deeply, finely and extremely closely but not confluent punctured, each puncture with fine striæ at bottom. Elytra also somewhat distorted but long, finely punctato-striate, the striæ shallow, the punctures strongly longitudinal, scarcely if at all wider than the striæ and moderately well impressed, interstitial spaces nearly flat, broad (three or four times as wide as the striæ), with scattered fine punctures and marked with a minute feathery fan-shaped alutaceous sculpture due probably to the impressions of striated scales. Each of these little alutaceous patches is practically equivalent in size to one of the stria punctures, or a little less, and in some cases they encroach on the striæ. Underside of the body finely closely punctured, the punctures with fine lines similar to those on the presumed scale impressions of the elytra, the abdominal sculpture a little finer than the thoracic. Legs wanting except a detached portion of what I take to be a fore tibia, of fairly stout build, and two joints of a hind tarsus. Length, exclusive of the rostrum, 5.90 mm.; of the beak, about 1.85 mm.

Station number 14. Collected by Geo. N. Rohwer. The type is in the Museum of the University of Colorado.

I place this strange weevil, known only from the single specimen, in the genus *Cryptorhynchus* in its broad sense. It bears a general resemblance to some of the large tropical *Cryptorhynchids* which have a similarly, though less exaggerated, short thorax. The generic reference is also borne out by the presence of post-ocular lobes, the short third and fourth abdominal segments, the beak structure and the antennæ. Nothing approaching it is to be found in Dr. Scudder's memoir. The figures will give an idea of the outline of the body and the courses of the striæ, except at the apex where they are obscure. Details of the striae punctuation and of the presumed scale marks are also shown.

C. fallii n. sp. (Plate III, Fig. 9.) Form stout. Head with fine close punctuation becoming somewhat rugose laterally. Eye elliptical, close to the base of the beak. Rostrum nearly straight, apparently with a rather strong constriction at base, median part wider than the basal, surface finely closely punctate, scrobe about straight, moderately deep and terminating just before the eye. Prothorax a little more than half as long as high, dorsal outline not distinguishable on account of the condition of the stone, front margin with distinct though not very strong ocular lobe, surface closely though not confluent punctured, the puncta of moderate size, becoming smaller near the lower margin. Elytron a little more than twice the length of the prothorax, and about one and a half times as long as wide, deeply striate, the striæ with rather small, distinct, well separated, subcircular punctures, the interstitial spaces convex and strongly alternating in height. There is evidence of punctuation on the interspaces as well as in the striæ but the exact nature of this interstitial sculpture is not easily made out. The appearance is that the flatter interspaces have a double row of fine circular punctures, the more convex ones a single median row of rather shallow transverse depressions giving a scabrous effect. Abdomen and sternal pieces of the meso and metathorax punctured similarly to the disk of the prothorax but a little less strongly. Legs more finely punctate. As far as can be seen, the thighs are not toothed. Length, exclusive of rostrum, 4.90 mm.; of beak, about 1.65 mm.

Station number 14. Collected by Mrs. W. P. Cockerell. The type and only specimen (in obverse and reverse) is in the Museum of the University of Colorado.

In a general way this beetle resembles the figure of *Geralophus discessus* Scudd., but that genus is said to be without post-ocular lobes. There are several points of disagreement in the specific characters as well. I have felt fairly safe in assigning the present species to *Cryptorhynchus* in the broad sense used by Illiger, but have not cared to attribute it to any of the more restricted groups into which that genus has been divided. The form, sculpture, alternation of elytral intervals, beak structure and ocular lobes are all *Cryptorhynchine*. In reference to the figure, the lines representing the striæ are intended merely to indicate their course, and relative positions.

These details and those of the punctuation (which is shown only on those parts of the elytra where best preserved) were made with the camera lucida.

The species is named for Mr. H. C. Fall of Pasadena, California.

C. kerri Scudd. Seems to have been fairly abundant. Two paired specimens come from Station number 13, S. A. Rohwer; two others are from Station number 14, Geo. N. Rohwer; and another, single, is from Station number 17, Mrs. W. P. Cockerell.

Baris Germ.

B. hoveyi n. sp. (Plate IV, Figs. 5, 6 and 7.) Form moderately elongate, recalling some of the recent species of *Limnobaris*. Head small, finely punctate, beak slender, rather long, slightly and regularly curved, not tapering much. Eye rather large, transverse. Antenna with the first funicular joint longer than the third and fourth united, club somewhat elliptical. Prothorax, in profile, a little higher than long, tapering arcuately and regularly to apex, back and breast pursuing similar but reversed curves, punctuation coarse and close, deep, but scarcely at all confluent, the punctures circular, stronger on the sides near the breast. Elytra moderately long, back only moderately arched, striate, the striae with extremely deep coarse round punctures, those of each stria separated by less than half their own diameters, but a little more distant from those in the adjoining rows. Towards the sides and apex, the punctuation is finer. Interstitial spaces somewhat convex, each with a row of smaller punctures as shown in the detail figure, these small punctures showing more plainly on each alternate interspace. Underside of meso and metathorax punctured similarly to the prothorax, abdominal sculpture indistinct, probably on account of the state of preservation. Legs short, stout, and rather evidently punctured. Length, exclusive of rostrum, 2.75 mm.

Station number 14. Collected by S. A. Rohwer. The type is in the American Museum of Natural History.

Represented by a single specimen in good preservation. Among Scudder's species, this compares only with *B. matura* which differs, if we may rely upon the figures and description, in having the stria punctures somewhat longitudinal and closer together, while the interstitial spaces are impunctate. The generic reference is to be understood in the broad sense.

Named for Dr. E. O. Hovey, of the American Museum of Natural History.

B. schucherti n. sp. (Plate IV, Figs. 3 and 4.) Preserved in profile. Form, in this view, subparallel, moderately stout. Head very finely sculptured, a slight punctulation being visible under considerable magnification. Eye not definable, beak stout, slightly curved. Prothorax long, closely and rather coarsely but not deeply punctured on the discal area, more finely near the sides and front. Elytra a little less than one and one half times as long as the prothorax, regularly but not very deeply striate, striae punctured, punctures circular, moderately deep, flat bottomed, a little more widely spaced in the rows nearest the outer margin, so that while

the punctures of a discal row are separated by about their own diameters, those of the rows near the margin are sometimes distant half as much again. The rows are separated by twice the diameters of the punctures. The interstitial spaces are about flat and apparently finely punctulate or roughened. Underside rather faintly and moderately closely punctate, a little more strongly on the thoracic than on the abdominal segments. Legs wanting. Length, excluding rostrum, 4.20 mm.

Station number 17. Collected by Mrs. W. P. Cockerell. The type, showing obverse and reverse, is in the Museum of the University of Colorado.

This beetle is much larger than any of the species of *Baris* described from Florissant by Dr. Scudder. It differs from all of them in so many details that there is not the slightest danger of confusion. The generic assignment must be understood as referring to *Baris* in the wide sense, since the antennal characters cannot be studied. The peculiar jointed appearance of the pronotum may be due to cracking or to some shifting of the opposite and underlying thoracic walls. The abdomen appears to have the tip broken off, the segments beyond the second are not definable. The representation of the elytral striae in the outline figure is intended to show their courses, the detail of the punctuation being shown on a higher scale in another drawing.

I give this species the name of Prof. Chas. Schuchert of Yale University.

B. matura Scudd. (Plate IV, Fig. 2.) Form rather stout, body decidedly less than twice as long as high, dorsal line only moderately and evenly arcuate. Head of moderate size, finely closely punctate, the punctures circular, beak slightly arcuate, striate and finely roughened, not strongly tapering, a little longer than the prothorax. Eye close to the base of the beak, slightly elliptical and oblique. Prothorax twice as high as long, strongly, not very finely, closely punctured, the punctures circular and regular, much larger than those of the head.

Station number 14. Collected by S. A. Rohwer.

A specimen, with reverse, agrees well with the description and detail figure of this species as given by Dr. Scudder. However, since my example is preserved in profile while his was in dorsal view, I thought it well to give the above notes and a figure to supplement his. This will allow the species to be compared more exactly with others known from Florissant, all of which seem to have been described by Dr. Scudder from profiles.

Balaninus Germ.

B. extinctus n. sp. (Plate IV, Figs. 13, 14 and 15.) Form moderately robust, obtuse at both ends. Head large, moderately coarsely and fairly closely punctured above, finely rugose on the lower parts of the cheek. Eye elliptical, transversely oblique. Beak, measured on the chord of the lower arc, slightly more than half the combined length of the thorax and elytra, moderately and nearly regularly arcuate,

surface finely roughened, scrobe deep. Prothorax short, distinctly more than twice as high as long, disk and upper part of the side with moderate sized circular punctures, regularly disposed and separated by approximately their own diameters, becoming gradually finer and more widely separated ventro-laterally. Elytra about three and one half times as long as the prothorax, rather finely punctate in striae, striae seemingly finely impressed, the punctures circular and widely spaced, as shown in the detail figure. Underside punctured similarly to the prothoracic disk, but more finely on the abdominal segments. Legs with moderately strongly clavate thighs, not visibly toothed, tibiae slender. Length, exclusive of rostrum, 2.40 mm.

Station number 17. Collected by Mrs. W. P. Cockerell. The type is in the Museum of the University of Colorado.

The single specimen at hand indicates that this insect was not closely related to those described by Scudder, being much smaller than any of them. It may approach the European species of *Balanobius* but seems to have shorter legs.

B. restrictus Scudd. The collection contains three specimens of a fine large *Balaninus* from Station number 14 and 20, represented by obverses and reverses, as well as another example from Station number 14 in reverse only. One of these is preserved on the flat, the remainder are side views. All agree in having a relatively short beak, about 3.50 mm. long, the outline of which varies somewhat in curvature but most closely approximates the figure of *B. restrictus* Scudd., which species is also closely imitated in form and elytral structure. In length, they vary from 7.00 to 9.50 mm. I do not find well marked characters for separation and have therefore assumed that they represent but one species, which I have assigned as above.

B. minusculoides Wickh. (Plate III, Fig. 2.) A figure of this species is given to supplement the description. No additional specimens have come to hand.

B. minusculus Scudd. One specimen from Station number 14, S. A. Rohwer: one from Station number 17, Geo. N. Rohwer: and another from the same place, Mrs. W. P. Cockerell.

Scyphophorus Schönk.

S. fassionis Scudd. Station number 14, S. A. Rohwer, a paired specimen. This shows, in the reverse, that the ridges corresponding to the elytral striae are slightly interrupted at short and regular intervals, indicating that the striae were faintly punctate. The prothorax also shows a fine punctuation.

Cratoparis Schönk.

C. adumbratus Wickh. (Plate I, Fig. 2.) The figure will show the outline and the courses of the elytral lines of punctures, but these lines are very nearly obliterated over a great part of the surface in the unique type. The nature of the punctuation is shown over a small area only.

EXPLANATION OF PLATES.

PLATE I.

- Fig. 1. *Otiorhynchites florissantensis* Wickh.
" 2. *Cratoparis adumbratus* Wickh.
" 3. *Ophryastes championi* n. sp.
" 4. *Cleonus rohweri* Wickh.

PLATE II.

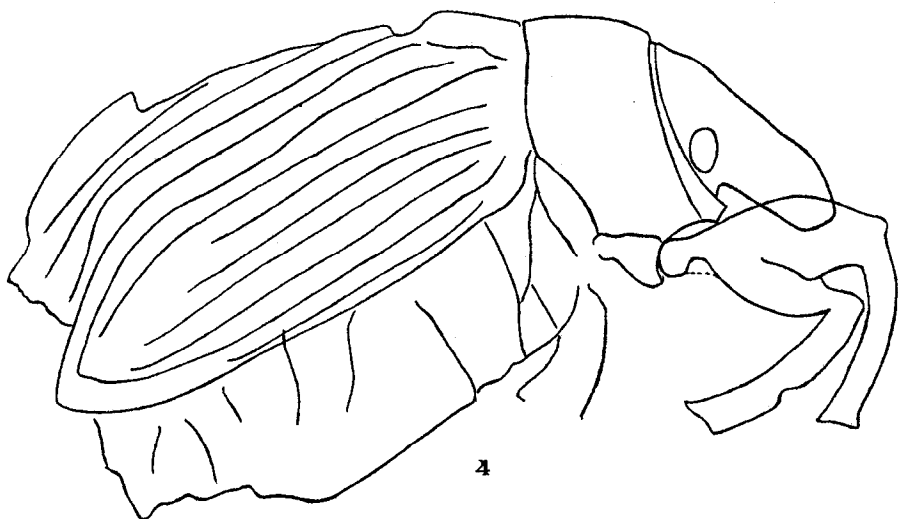
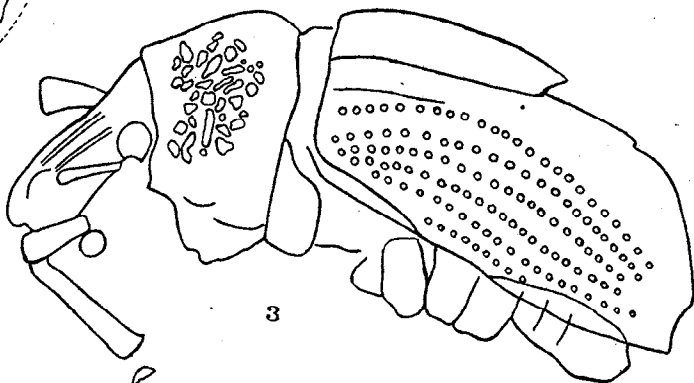
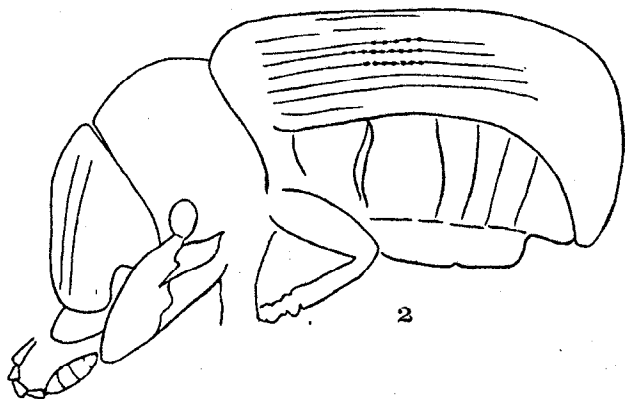
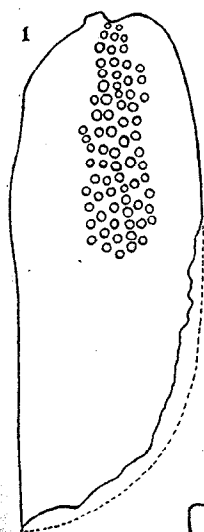
- Fig. 1. *Ophryastites miocenens* n. sp.
" 2. *Magdalis striaticeps* Wickh.
" 3. *Cleonus estriatus* n. sp.
" 4. *Cyphus subterraneus* Wickh.

PLATE III.

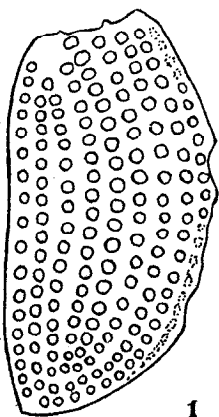
- Fig. 1. *Conotrachelus florissantensis* n. sp.
" 2. *Balaninus minusculoides* Wickh.
" 3. *Coniatus differens* n. sp.
" 4. " " detail of elytral punctuation.
" 5. *Toxorhynchus grandis* Wickh.
" 6. *Cryptorhynchus coloradensis* n. sp.
" 7. " " detail of antenna.
" 8. " " " of elytral punctuation and scales.
" 9. " fallii n. sp.

PLATE IV.

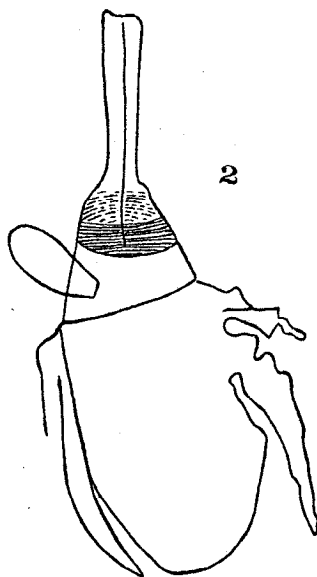
- Fig. 1. *Dorytomus vulcanicus* n. sp.
" 2. *Baris matura* Scudd.
" 3. " schucherti n. sp.
" 4. " " detail of elytral punctuation.
" 5. " hoveyi n. sp.
" 6. " " detail of antenna.
" 7. " " " of elytral punctuation.
" 8. *Geralophus scudderi* Wickh.
" 9. *Eugnamptidea tertiaria* n. gen. et n. sp.
" 10. " " detail of antenna.
" 11. *Anthonomus rohweri* n. sp.
" 12. " " detail of elytral punctuation.
" 13. *Balaninus extinctus* n. sp.
" 14. " " detail of antenna.
" 15. " " " of elytral punctuation



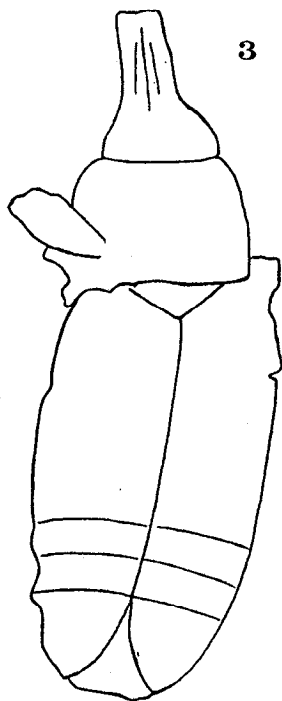
FOSSIL RHYNCHOPHOROUS COLEOPTERA FROM FLORISSANT, COLORADO.



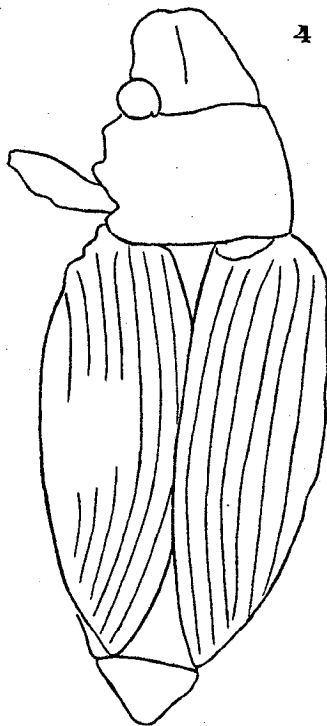
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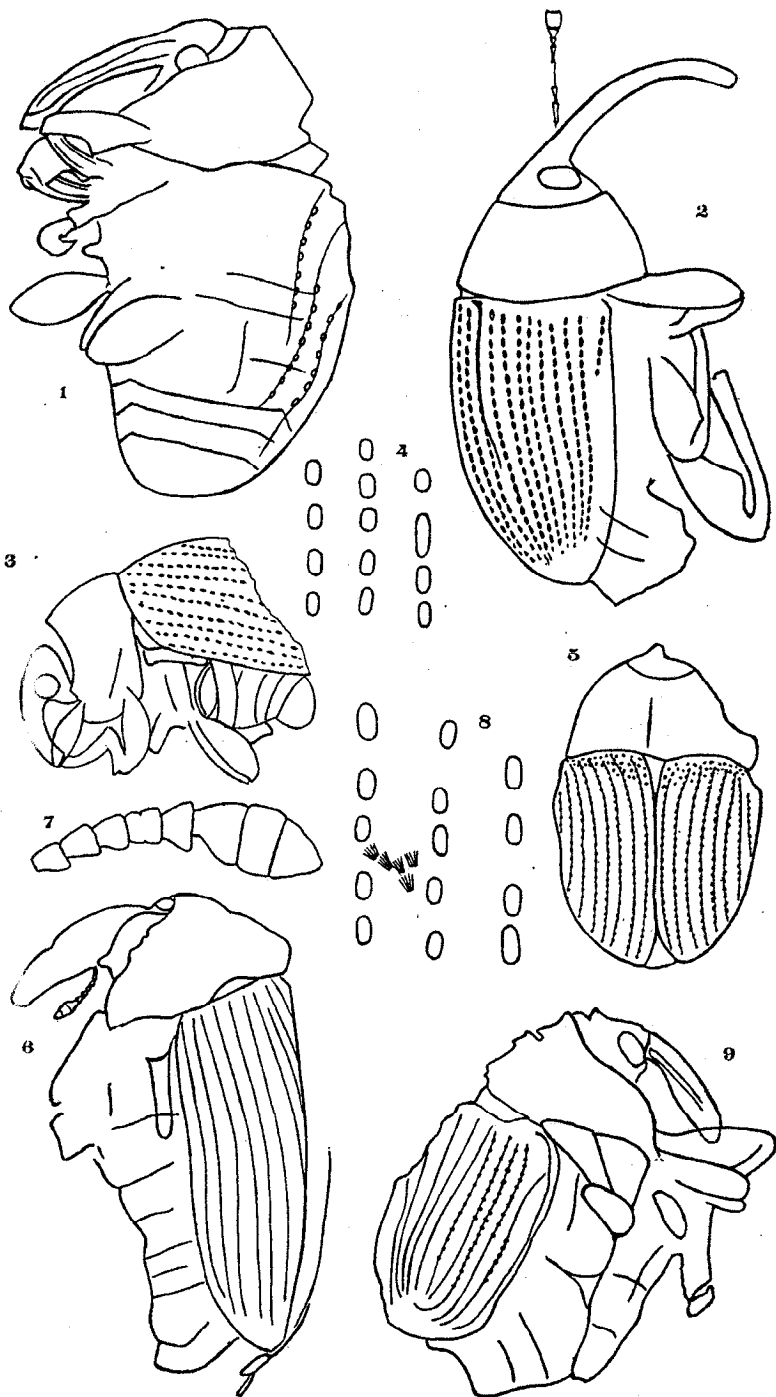
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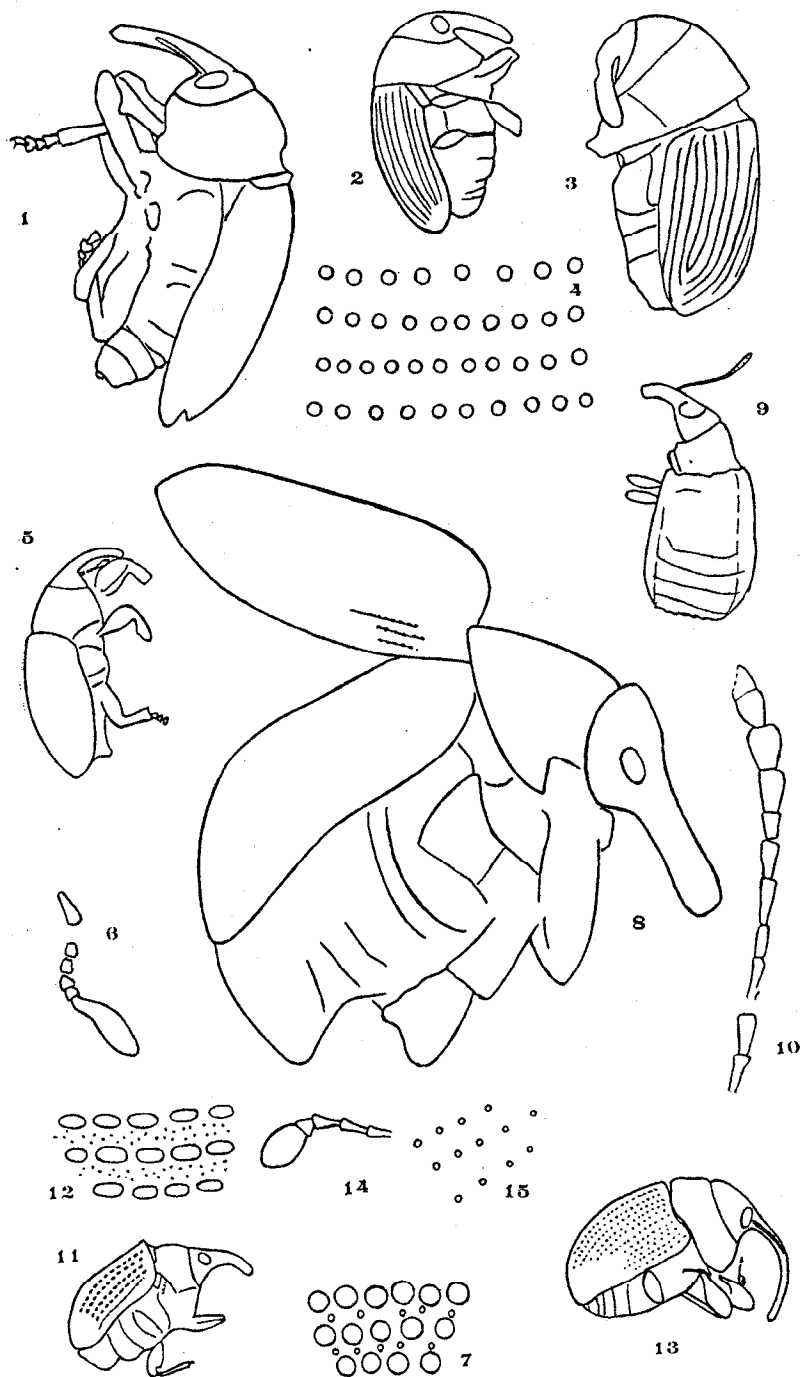


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4





FOSSIL RHYNCHOPHOUS COLEOPTERA FROM FLORISSANT, COLORADO.